

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

IREDELL COUNTY

LOCATION: BRIDGE NO. 258 OVER ROCKY CREEK ON SR 1863 (MORGAN FORD ROAD)

TYPE OF WORK: BRIDGE RECONSTRUCTION: SUPERSTRUCTURE REPLACEMENT

901		
701	186	901
1598 1865		1862
	1865	1863
	258 186	Creek
	1866	67
1595	1863	1862 1966
115	1961	
	VICINITY MAP - IR	REDELL CO.



H CAROLINASANOLLE

DESIGN DATA

IREDELL COUNTY
BRIDGE # 258
ADT 2000 = 70

PROJECT LENGTH

IREDELL COUNTY

BRIDGE # 258 = 0.023 MI.

Prepared in the Office of:

DIVISION OF HIGHWAYS

STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2018 STANDARD SPECIFICATIONS

LETTING DATE :

MAY 14, 2019

A. KEITH PASCHAL, P.E.

PROJECT ENGINEER

STATE PROJECT REFERENCE NO.

17BP.12.H.3

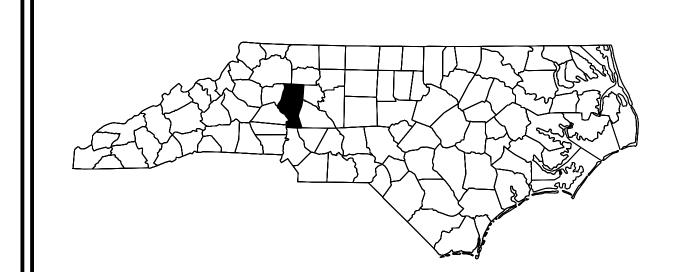
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17BP.12.H.3

17BP.12.H.3

ADAM A. COLE, P.E.

PROJECT DESIGN ENGINEER



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

IREDELL COUNTY

LOCATION: BRIDGE NO. 258 OVER ROCKY CREEK
ON SR 1863 (MORGAN FORD ROAD)

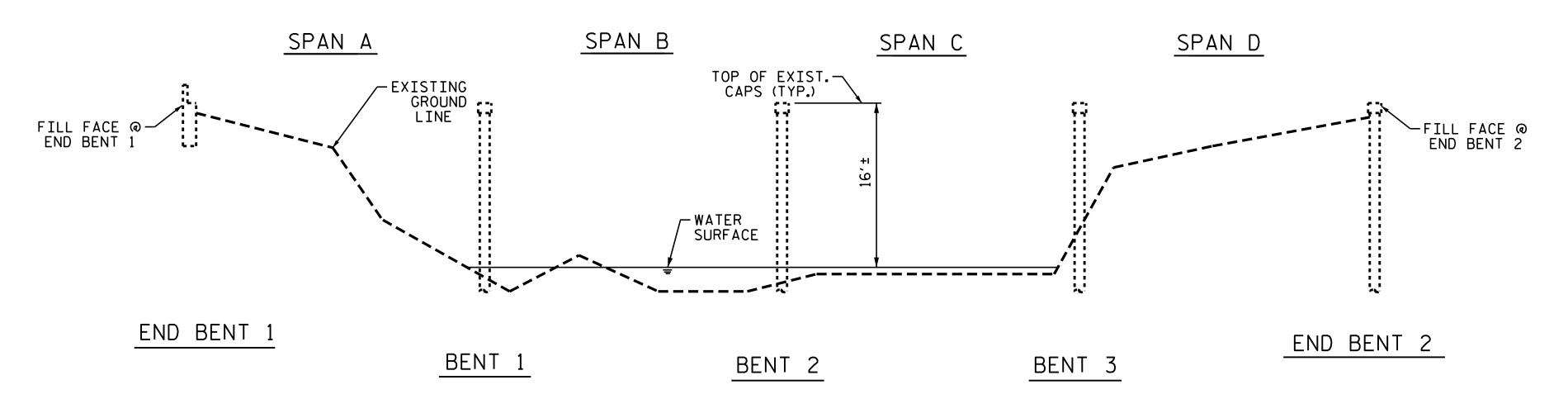
TYPE OF WORK: BRIDGE RECONSTRUCTION: SUPERSTRUCTURE REPLACEMENT

N.C. 17BP.12.H.3 1A STATE PROJ.NO. P.A.PROJ.NO. DESCRIPTION 17BP.12.H.3 N/A PE 17BP.12.H.3 N/A CONST.

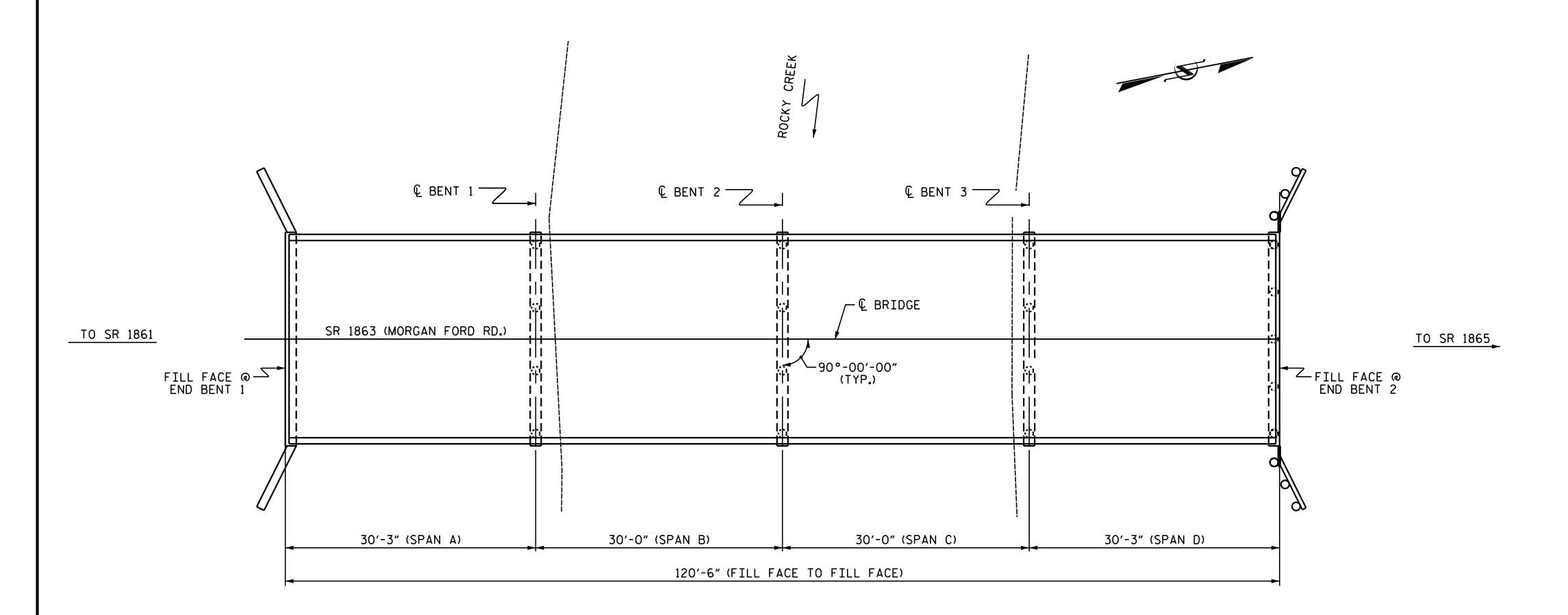
STATE PROJECT REPERENCE NO.

INDEX OF SHEETS

1	TITLE SHEET
<i>1A</i>	INDEX OF SHEETS
S-1	GENERAL DRAWING
S –2	BILL OF MATERIAL AND LOCATION SKETCH
S –3	TYPICAL SECTIONS
<i>S</i> –4	FRAMING PLAN
S –5	STRUCTURAL STEEL DETAILS
SN	STANDARD NOTES



SECTION ALONG & BRIDGE



PLAN

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

__ DATE : <u>02/2019</u> __ DATE : <u>03/2019</u> H. A. LOCKLEAR DRAWN BY : . A. A. COLE CHECKED BY :

RESIDENT ENGINEER DATE

NOTES

PLAN INFORMATION IS TAKEN FROM THE ROUTINE INSPECTION REPORT DATED 06/11/2018. THE CONTRACTOR SHALL FIELD VERIFY THE BRIDGE SPAN LENGTHS PRIOR TO FABRICATION OF THE STEEL BEAMS.

BRIDGE ORIENTATION CONFORMS TO THE ROUTINE INSPECTION REPORT DATED 06/11/2018.

SCOPE OF WORK

- REMOVE EXISTING BRIDGE SUPERSTRUCTURE.
 INSTALL STEEL I-BEAMS ON EXISTING SUBSTRUCTURE.
 REPLACE BEARING PLATES AND ANCHOR BOLTS.
 INSTALL STEEL DIAPHRAGMS.

PROJECT NO. 17BP.12.H.3 IREDELL COUNTY

BRIDGE NO. 480258



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GENERAL DRAWING

FOR BRIDGE OVER ROCKY CREEK ON SR 1863 (MORGAN FORD ROAD)

BY:

SHEET NO. **REVISIONS** S-1 NO. BY: DATE: DATE: DOCUMENT NOT CONSIDERED 1
FINAL UNLESS ALL SIGNATURES COMPLETED 2 TOTAL SHEETS

11-APR-2019 07:34
S:\DPG3\Division Requests\Division 12\Iredell 258\Final Plans\401_005_IREDELL_SMU_GD_01_480258.dgn
aacole



LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

BRIDGE COORDINATES

LATITUDE: 36.01318611 LONGITUDE: -80.93191111

TOTAL BILL OF MATERIAL								
	REMOVAL OF EXISTING STRUCTURE AT BRIDGE #258	APPROX. 42,216 LBS STRUCTURAL STEEL						
	LUMP SUM	LUMP SUM						
SUPERSTRUCTURE	LUMP SUM	LUMP SUM						
END BENT 1								
BENT 1								
BENT 2								
BENT 3								
END BENT 1								
TOTAL	LUMP SUM	LUMP SUM						

DRAWN BY :	H. A. LOCKLEAR	DATE :	02/2019
CHECKED BY :	A. A. COLE	DATE :	03/2019

NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

THE EXISTING STRUCTURE CONSISTS OF 4 SIMPLE SPANS: 2 @ 30'-3" AND 2 @ 30'-0"; 19'-2" CLEAR ROAD WIDTH AND W14x30 STEEL BEAMS; END BENTS AND INTERIOR BENTS: END BENT 1 MASS CONCRETE; END BENT 2 AND INTERIOR BENTS ARE TIMBER BEAMS ON TIMBER PILES. THE EXISTING BRIDGE IS CLOSED TO ALL TRAFFIC.

REMOVAL OF THE EXISTING BRIDGE SUPERSTRUCTURE SHALL BE PERFORMED SO AS NOT TO DAMAGE THE EXISTING SUBSTRUCTURE AND IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE EXISTING BRIDGE SUPERSTRUCTURE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

NCDOT FORCES MAY NEED TO MAKE REPAIRS TO THE EXISTING BENTS AND/OR END BENTS. THE CONTRACTOR SHALL COORDINATE HIS WORK SCHEDULE WITH THE ENGINEER TO AVOID CONFLICTS. FOR COORDINATION WITH NCDOT STATESVILLE BRIDGE UNIT, SEE SPECIAL PROVISION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.12.H.3

IREDELL COUNTY

BRIDGE NO. 480258



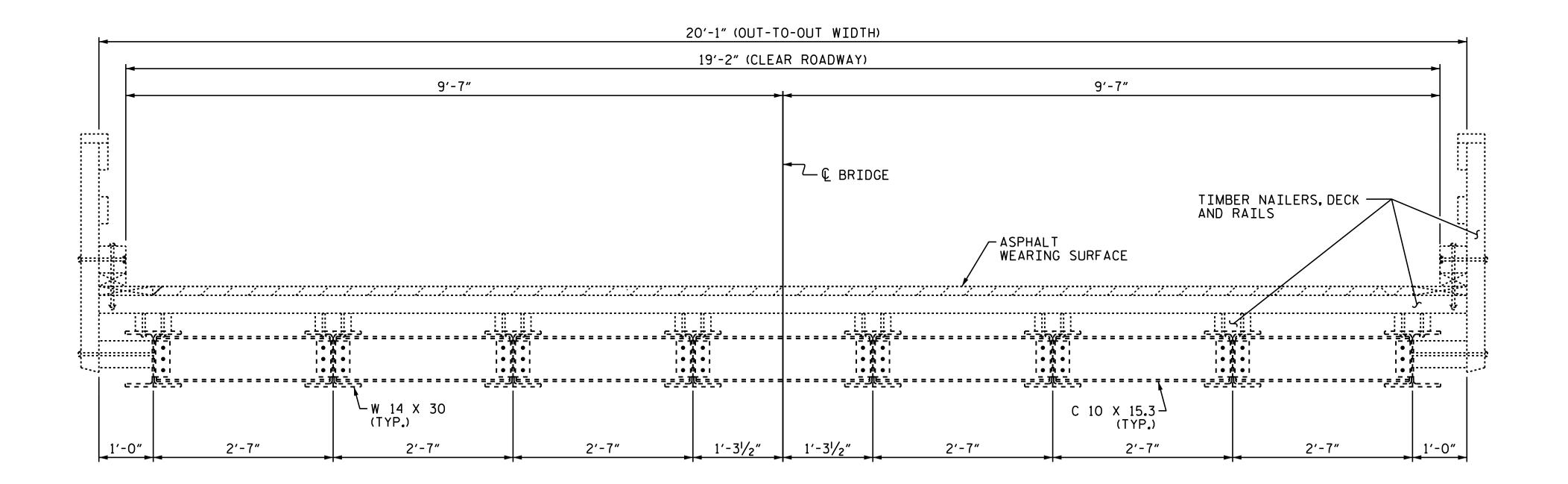
STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

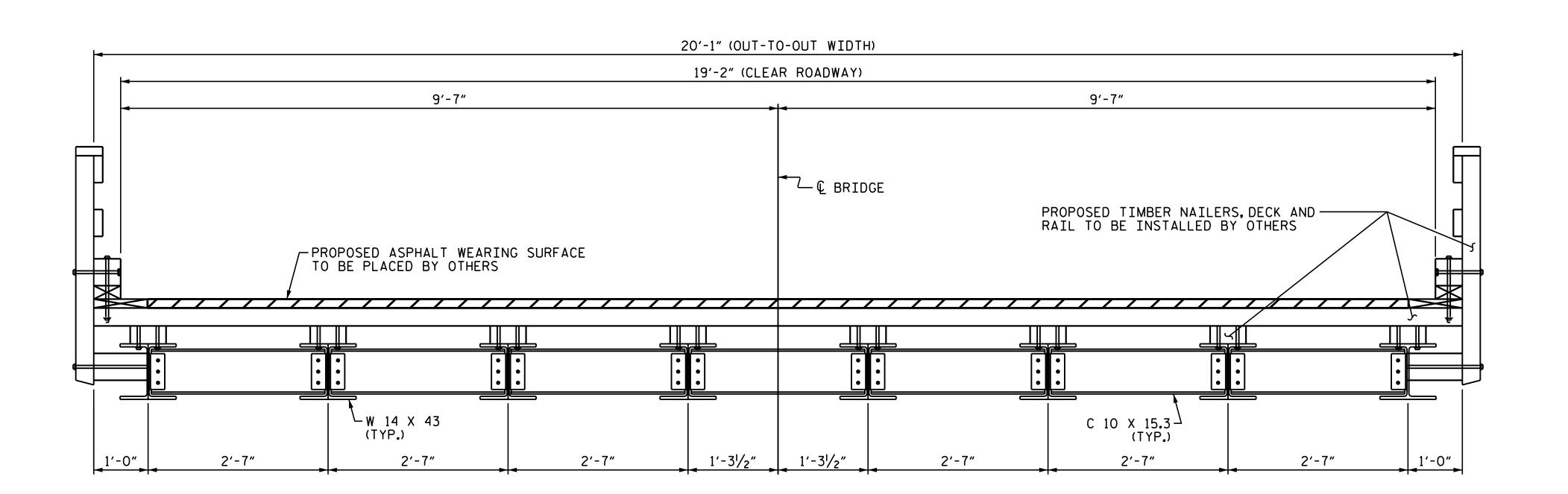
RALEIGH

FRAMING PLAN

	REVISIONS						SHEET NO.
CUMENT NOT CONSIDERED	NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
FINAL UNLESS ALL	1			3			TOTAL SHEETS
SIGNATURES COMPLETED	2			4			5



EXISTING TYPICAL SECTION (ALL FEATURES SHOWN SHALL BE REMOVED BY THE CONTRACTOR)



PROPOSED TYPICAL SECTION

DRAWN BY: H.A.LOCKLEAR DATE: 02/2019
CHECKED BY: A.A.COLE DATE: 03/2019

: 03/2015

NOTES

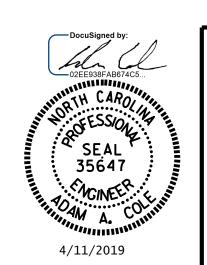
ASSUMED LIVE LOAD = HS-20 OR ALTERNATE LOADING. THE CONDITION OF THE SUBSTRUCTURE MAY CONTROL BRIDGE LOAD RATING.

TWO LINES OF DIAPHRAGMS PER SPAN ARE REQUIRED AT SPACING SHOWN ON FRAMING PLAN.

PROJECT NO. 17BP.12.H.3

IREDELL COUNTY

BRIDGE NO. 480258



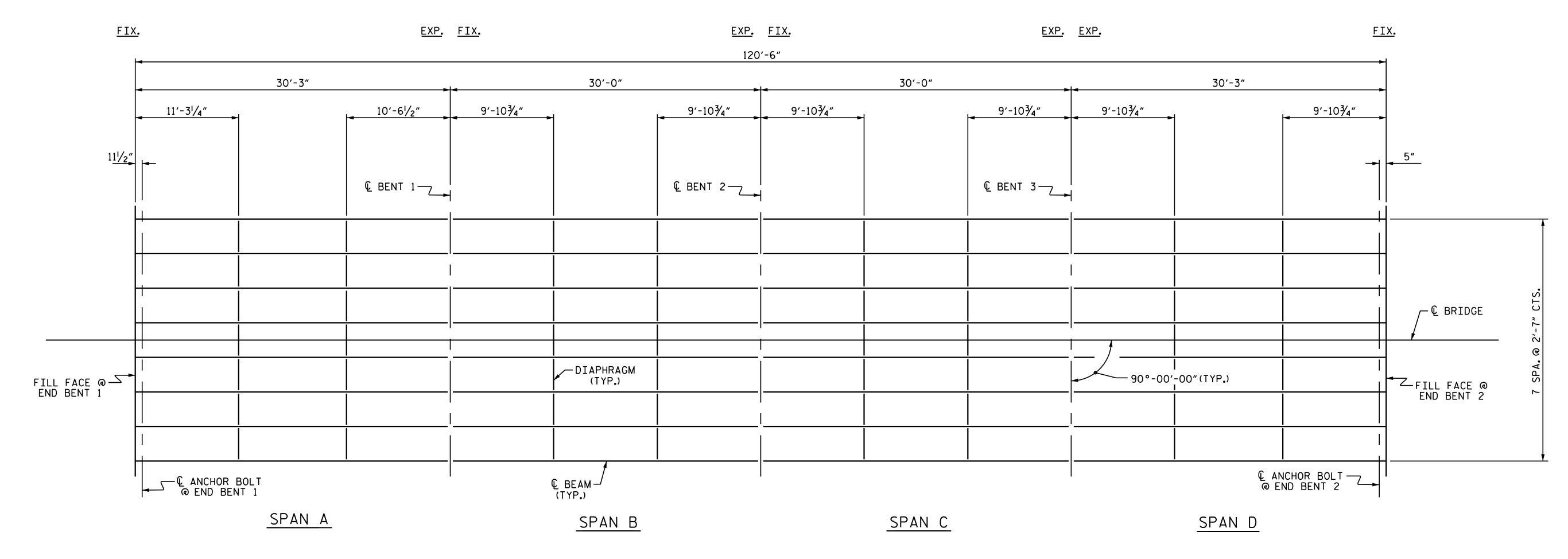
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTIONS

	REVISIONS					SHEET NO.	
DOCUMENT NOT CONSIDERED	NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
FINAL UNLESS ALL	1			3			TOTAL SHEETS
SIGNATURES COMPLETED	2			4			5

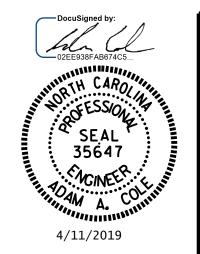




FRAMING PLAN

PROJECT NO. 17BP.12.H.3

______IREDELL _____ county
BRIDGE NO. 480258



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

FRAMING PLAN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED 2 4 5 SHEET NO.

REVISIONS SHEET NO.

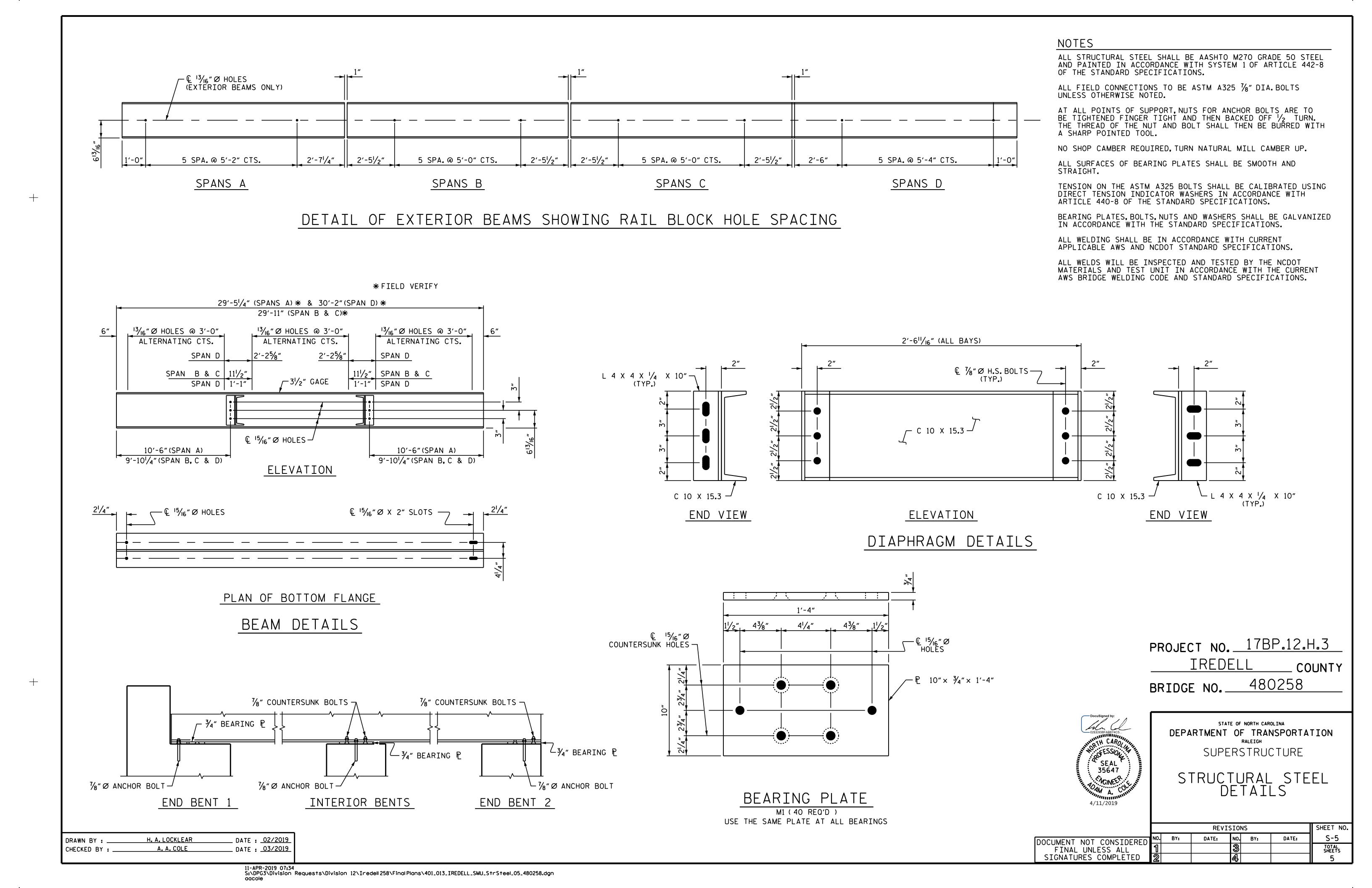
BY: DATE: NO. BY: DATE: S-4

TOTAL SHEETS

5

 DRAWN BY :
 H. A. LOCKLEAR
 DATE :
 02/2019

 CHECKED BY :
 A. A. COLE
 DATE :
 03/2019



STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS - - - - - - - - - - - A.A.S.H.T.O. (CURRENT) LIVE LOAD ----- SEE PLANS IMPACT ALLOWANCE - - - - - - - - - SEE A.A.S.H.T.O. STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36 - - 20,000 LBS. PER SQ. IN. - AASHTO M270 GRADE 50W - - 27,000 LBS.PER SQ.IN. - AASHTO M270 GRADE 50 - - 27,000 LBS. PER SQ. IN. REINFORCING STEEL IN TENSION - GRADE 60 - - - 24,000 LBS. PER SQ. IN. CONCRETE IN SHEAR - - - - - - - - - SEE A.A.S.H.T.O. STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS - - - 1,800 LBS. PER SQ. IN. COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER ---- 375 LBS. PER SQ. IN. ---- 30 LBS.PER CU.FT. EQUIVALENT FLUID PRESSURE OF EARTH

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

(MINIMUM)

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 11/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " Ø SHEAR STUDS FOR THE $\frac{7}{4}$ " Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " Ø STUDS FOR 4 - $\frac{3}{4}$ " Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " Ø STUDS ALONG THE BEAM AS SHOWN FOR $\frac{7}{4}$ " Ø STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " Ø STUDS FOR 4 - $\frac{3}{4}$ " Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST \(\frac{1}{6}\) IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH